

**Docket No.: 01-11 US**

**IN THE CLAIMS**

21. (Currently Amended) ~~Apparatus~~ An apparatus for carrying out liquid-liquid micro extraction or liquid-liquid-liquid micro extraction, said apparatus comprising:

a first container for receiving a sample solution, the solution comprising a dissolved analyte;

a second container, that is hollow, disposed within said first container and having a membrane wall with fibre pores permeable by the analyte;

~~a acceptor~~ an acceptor solution disposed within the second container; and

means for enhancing transport of the analyte from the sample solution, through the membrane wall and into said acceptor solution.

22. (Previously Presented) The apparatus according to claim 21 further comprising a liquid membrane disposed in said fibre pores.

23. (Previously Presented) The apparatus according to claim 22 wherein said liquid membrane comprises 1-octanol.

24. (Previously Presented) The apparatus according to claim 21 wherein the second container is a tubular microporous fibre.

25. (Previously Presented) The apparatus according to claim 24 wherein the tubular fibre has a closed end and an open end for receiving and removal of said acceptor solution.

26. (Previously Presented) The apparatus according to claim 24 wherein the tubular fibre has two open ends for receiving and removal of said acceptor solution.

27. (Previously Presented) The apparatus according to claim 26 wherein the tubular fibre comprises a polymer.

28. (Previously Presented) The apparatus according to claim 21 wherein said first

**Docket No.: 01-11 US**

container has a volume of  $V_s$ , said second container has a volume of  $V_a$  and a ratio of  $V_s$  to  $V_a$  is  $\geq 50$ .

29. (Previously Presented) The apparatus according to claim 28 wherein  $V_a$  is between about 1 $\mu$ l and about 50 $\mu$ l.

30. (Previously Presented) The apparatus according to claim 21 wherein said acceptor solution has a pH for ionizing the analyte to prevent ionized analyte from passing from said acceptor solution through the membrane wall and into the sample solution.

31. (Currently Amended) ~~Apparatus~~ An Apparatus for carrying out liquid-liquid micro extraction or liquid-liquid-liquid micro extraction, said apparatus comprising:

a first container;

a sample solution disposed in said first container, said sample solution comprising a dissolved analyte;

a second container, that is hollow, disposed within said sample solution and having a membrane wall with fibre pores permeable by the analyte;

an acceptor solution disposed within the second container, said membrane wall enabling analyte equilibrium to be established between said sample solution and said acceptor solution.

32. (Previously Presented) The apparatus according to claim 31 further comprises a liquid membrane disposed in said fibre pores.

33. (Previously Presented) The apparatus according to claim 32 wherein said liquid membrane comprises 1-octanol.

34. (Previously Presented) The apparatus according to claim 31 further comprising means for accelerating analyte equilibrium between said sample solution and said acceptor solution.

**Docket No.: 01-11 US**

35. (Previously Presented) The apparatus according to claim 31 wherein the second container is a tubular microporous fibre.

36. (Previously Amended) The apparatus according to claim 35 wherein the tubular fibre has a closed end and an open end for receiving and removal of said acceptor solution.

37. (Previously Presented) The apparatus according to claim 35 wherein the tubular fibre has two open ends for receiving and removal of said acceptor solution.

38. (Previously Presented) The apparatus according to claim 37 wherein the tubular fibre comprises a polymer.

39. (Previously Presented) The apparatus according to claim 31 wherein said first container has a volume of  $V_s$ , said second container has a volume of  $V_a$  and a ratio of  $V_s$  to  $V_a$  is  $\geq 50$ .

40. (Previously Presented) The apparatus according to claim 39 wherein  $V_a$  is between about 1 $\mu$ l and about 50 $\mu$ l.

41. (Previously Presented) The apparatus according to claim 31 wherein said acceptor solution has a pH for ionizing the analyte to prevent ionized analyte from passing from said acceptor solution through the membrane wall and into the sample solution.

42. (Previously Amended) A method of liquid-liquid micro extraction, or liquid-liquid-liquid micro extraction, said method comprising the steps of:

disposing a sample solution comprising a dissolved analyte into a first container;

disposing a second container, that is hollow, into said sample solution, providing the second container with a membrane wall having fibre pores permeable by the analyte;

disposing an acceptor solution into the second container;

allowing analyte equilibrium to be established between said sample solution and said

**Docket No.: 01-11 US**

acceptor solution through said membrane wall; and  
removing analyte enriched acceptor solution from said second container.

43. (Previously Presented) The method according to claim 42 further comprising the step of disposing a liquid membrane in said fibre pores before disposing said second hollow container into said sample solution.

44. (Previously Presented) The method according to claim 42 wherein the step of disposing a second hollow container into said sample solution comprises disposing a tubular microporous fibre into said sample solution.

45. (Previously Presented) The method according to claim 44 wherein the step of disposing a tubular fibre comprises disposing a closed end fibre into said sample solution.

46. (Previously Presented) The method according to claim 44 wherein the step of disposing a tubular fibre comprises disposing a center portion of a tubular fibre having two open ends into said sample solution.

47. (Previously Presented) The method according to claim 44 wherein the step of disposing an acceptor solution into the second container comprising the step of disposing an acceptor solution having a pH for ionizing the analyte to prevent ionized analyte from passing from said acceptor solution through the membrane wall and into the sample solution.

48. (Previously Amended) A method of liquid-liquid micro extraction, or liquid-liquid-liquid micro extraction, said method comprising the steps of:

- disposing a sample solution comprising a dissolved analyte into a first container;
- disposing a second container, that is hollow, into said sample solution and providing the second container with a membrane wall permeable by the analyte;
- disposing an acceptor solution into the second container;
- enriching analyte in said acceptor solution by allowing analyte equilibrium between

**Docket No.: 01-11 US**

said sample solution and said acceptor solution through said membrane wall; and  
removing analyte enriched acceptor solution from said second container.

49. (Previously Presented) The method according to claim 48 further comprising the step of disposing a liquid membrane in said fibre pores before disposing said second hollow container into said sample solution.

50. (Previously Presented) The method according to claim 48 wherein the step of disposing a second hollow container into said sample solution comprises disposing a tubular microporous fibre into said sample solution.

51. (Previously Presented) The method according to claim 50 wherein the step of disposing a tubular fibre comprises disposing a closed end fibre into said sample solution.

52. (Previously Presented) The method according to claim 50 wherein the step of disposing a tubular fibre comprises disposing a center portion of a tubular fibre having two open ends into said sample solution.

53. (Previously Presented) The method according to claim 48 wherein the step of disposing an acceptor solution into the second container comprising the step of disposing an acceptor solution having a pH for ionizing the analyte to prevent ionized analyte from passing from said acceptor solution through the membrane wall and into the sample solution.

54. (Previously Amended) A method of liquid-liquid micro extraction, or liquid-liquid-liquid micro extraction, said method comprises the steps of:

- disposing a sample solution comprising a dissolved analyte into a first container;
- disposing a second container, that is hollow, into said sample solution and providing the second container with a membrane wall permeable by the analyte;
- disposing an acceptor solution into the second container and providing the acceptor solution with a pH for ionizing the analyte in order to prevent ionized analyte from passing from said

**Docket No.: 01-11 US**

acceptor solution through the membrane wall and into the sample solution;  
enriching analyte in said acceptor solution by allowing analyte equilibrium between  
said sample solution and said acceptor solution through said membrane wall; and  
removing analyte enriched acceptor solution from said second container.

55. (Previously Presented) The method according to claim 54 further comprising the step  
of disposing a liquid membrane in said fibre pores before disposing said second hollow container  
into said sample solution.

56. (Previously Presented) The method according to claim 54 wherein the step of  
disposing a second hollow container into said sample solution comprises disposing a tubular  
microporous fibre into said sample solution.

57. (Previously Presented) The method according to claim 56 wherein the step of  
disposing a tubular fibre comprises disposing a closed end fibre into said sample solution.

58. (Previously Presented) The method according to claim 56 wherein the step of  
disposing a tubular fibre comprises disposing a center portion of a tubular fibre having two open  
ends into said sample solution.